

Sarah B. Kapnick

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| CONTACT INFORMATION | Geophysical Fluid Dynamics Laboratory / NOAA; Forresteral Campus, Princeton University 201 Forresteral Road; Princeton, NJ 08540 <i>Office:</i> (609) 452-6548 <i>E-mail:</i> sarah.kapnick@noaa.gov <i>Website:</i> http://www.gfdl.noaa.gov/sarah – <i>kapnicks – homepage</i> |
| PROFESSIONAL EXPERIENCE | <i>Research Physical Scientist</i> , GFDL/NOAA, January 2015-Present <i>NSF Postdoctoral Research Fellow</i> , Atmospheric and Oceanic Sciences Program, Princeton University and GFDL/NOAA, November 2013-January 2015 <i>Postdoctoral Research Associate and Visiting Scientist</i> , Atmospheric and Oceanic Sciences Program, Princeton University and GFDL/NOAA, October 2011-October 2013 <i>Research Assistant</i> , Atmospheric and Oceanic Sciences, UCLA, June 2011-September 2011 |
| EDUCATION | University of California, Los Angeles , Los Angeles, California Ph.D., Atmospheric and Oceanic Sciences, Dissertation Advisor: Alex Hall, June 2011 Leaders in Sustainability Certificate, Institute of Environment and Sustainability, May 2011 M.S., Atmospheric Sciences, December 2007 Princeton University , Princeton, New Jersey A.B., Mathematics, Senior Thesis Advisor: S. George Philander, June 2004 Certificate in Finance, Bendheim Center for Finance, June 2004 |
| HONORS AND AWARDS | <i>AGU Cryosphere Section Early Career Award</i> , 2015 <i>Visiting Scientist Award</i> , Integrated Climate System Analysis and Prediction (CliSAP), University of Hamburg, 2014 <i>NSF Atmospheric and Geospace Sciences Postdoctoral Research Fellowship</i> , 2013-2015 <i>ThinkSwiss Travel Grant</i> , ThinkSwiss.org, Switzerland, 2012 <i>Bjerknes Award</i> , Department of Atmospheric and Oceanic Sciences, UCLA, 2011 <i>Mautner Graduate Student Award</i> , Physical and Life Sciences Division, UCLA, 2011 <i>Brian Lance Bosart Memorial Award</i> , Department of Atmospheric and Oceanic Sciences, UCLA, 2010 <i>UCLA Dissertation Fellowship</i> , UCLA, 2010-2011 <i>Switzer Environmental Fellowship Award</i> , Robert & Patricia Switzer Foundation, 2010 <i>UCLA Charles E. and Sue K. Young Graduate Student Award</i> , College of Letters and Sciences, UCLA, 2010 <i>NASA Earth and Space Science Fellowship</i> , 2007-2010 <i>Edwin W. Pauley Fellowship</i> , UCLA, 2006-2007 <i>Roy and Dorothy John Fellowship</i> , UCLA, 2006-2007 |
| ACADEMIC COMMITTEES | Justin Ng, Princeton University, AOS Program, Ph.D. Committee Member Arielle Catalano, Rutgers U., Atmospheric Science, Ph.D. Committee Member, Expected 2017 |
| PUBLICATIONS | van der Wiel, K., Kapnick, S. , Vecchi, G., Cooke, W., Delworth, T., Jia, L., Murakami, H., Underwood, S., and Zeng, F., 2016: The resolution dependence of US precipitation extremes in |

response to CO₂ forcing. *Submitted to Journal of Climate*.

Pascale, S., Bordoni, S., **Kapnick, S.**, Vecchi, G., Jia, L., Delworth, T., Underwood, S., Anderson, W., 2016: The impact of horizontal resolution on North American monsoon Gulf of California moisture surges in a suite of coupled global climate models. *Submitted to Journal of Climate*

Lemoine, D. and **S. Kapnick**, 2015: A Top-Down Approach to Projecting Market Impacts of Climate Change, *AOP at Nature Climate Change*, doi:10.1038/nclimate2759.

Wrzesien, M., Pavelsky, T., **Kapnick, S.**, Durand, M., Painter, T., 2015: Validation of Snow Cover Fraction for Regional Climate Simulations in the Sierra Nevada. *International Journal of Climatology*, **35**, 2472-2484.

Yang, X., Vecchi, G., Gudgel, R., Delworth, T., Zhang, S., Rosati, A., Jia, L., Stern, W., Wittenberg, A., **Kapnick, S.**, Msadek, R., Underwood, S., Zeng, F., Anderson, W., Balaji, V., 2015: Seasonal predictability of extratropical storm tracks in a high-resolution GFDL climate prediction model. *Journal of Climate*, **28** (9), 3592-3611.

Jia, L., Yang, Z., Vecchi, G.A., Gudgel, R., Delworth, T., Rosati, A., Stern, B., Wittenberg, A.T., Krishnamurthy, L., Zhang, S., Msadek, R., **Kapnick, S.**, Underwood, S., Zeng, F., Anderson, W., Balaji, V., Dixon, K., 2015: Improved Seasonal Prediction of Temperature and Precipitation over Land in a High-Resolution GFDL Climate Model. *Journal of Climate*, **28** (5), 2044-2062.

Kapnick, S., Delworth, T., Ashfaq, M., Malyshev, S., Milly, P.C.D., 2014: Snowfall less sensitive to warming in Karakoram than in Himalayas due to a unique seasonal cycle. *Nature Geoscience*, **7** 834-840, doi:10.1038/ngeo2269.

Vecchi, G.A., Delworth, T., Gudgel, R., **Kapnick, S.**, Rosati, A., Zeng, F., Anderson, W., Balaji, V., Jia, L., Kim, H.-S., Krishnamurthy, L., Msadek, R., Stern, W.F., Underwood, S.D., Villarini, G., Wittenberg, A.T., Yang, X., Zhang S., 2014: On the Seasonal Forecasting of Regional Tropical Cyclone Activity. *Journal of Climate*, **27** (21), 7994-8016.

Kapnick, S. and T. Delworth, 2013: Controls of Global Snow Under a Changed Climate. *Journal of Climate*, **26** (15), 5537-5562.

Pavelsky, T., Sobolowski, S., **Kapnick, S.**, Barnes, J., 2012: Changes in orographic precipitation patterns caused by a shift from snow to rain. *Geophysical Research Letters*, **39**, L18706, doi:10.1029/2012GL052741.

Kapnick, S. and A. Hall, 2012: Causes of recent changes in western North American snowpack. *Climate Dynamics*, **38** (9), 1885-1899, doi:10.1007/s00382-011-1089-y.

Waliser, D., Kim, J., Xue, Y., Chao, Y., Eldering, A., Fovell, R., Hall, A., Li, Q., Liou, K., McWilliams, J., **Kapnick, S.**, Vasic, R., De Sale, R., Yu, Y., 2012: Simulating the Sierra Nevada snowpack: The impact of snow albedo and multi-layer snow physics. *Climatic Change*, **109** (S1), 95-117.

Boé, J., Hall, A., Colas, F., McWilliams, J., Qu, X., Kurian, J., **Kapnick, S.**, 2011: What shapes mesoscale wind anomalies in coastal upwelling zones? *Climate Dynamics*, **36** (11), 2037-2049, doi:10.1007/s00382-011-1058-5.

Pavelsky, T., **Kapnick, S.**, Hall, A., 2011: Accumulation and melt dynamics of snowpack from a multi-resolution regional climate model in the central Sierra Nevada, California. *JGR-Atmospheres*, **116**, doi:10.1029/2010JD015479.

Kapnick, S. and A. Hall, 2010: Observed climate-snowpack relationships in California and their implications for the future. *Journal of Climate*, **23** (13), 3446-3456.

Kapnick, S. and A. Hall, 2009: Observed changes in the Sierra Nevada snowpack: potential causes and concerns. California Environmental Protection Agency and California Energy Commission Report CEC-500-2009-016-F.

Kim, J., Fovell, R., Hall, A., Li, Q., Liou, K., McWilliams, J., Xue, Y., Qu, X., **Kapnick, S.**, Waliser, D., Eldering, A., Chao, Y., Friedl, R., 2009: A projection of the cold season hydroclimate in California in mid-21st century under the SRES-A1B emission scenario. California Environmental Protection Agency and California Energy Commission Report CEC-500-2009-029-F.

Waliser, D., Kim, J., Xue, Y., Chao, Y., Eldering, A., Fovell, R., Hall, A., Li, Q., Liou, K., McWilliams, J., **Kapnick, S.**, Vasic, R., De Sale, F., Yu, Y., 2009: Simulating the Sierra Nevada snowpack: The impact of snow albedo and multi-layer snow physics. California Environmental Protection Agency and California Energy Commission Report CEC-500-2009-030-F.

ACADEMIC TALKS

2016 iSWGR NASA Snow Meeting

2015 AGU Annual Meeting; SUNY-Stony Brook

2014 Max-Planck-Institute for Meteorology and University of Hamburg Institute of Oceanography Joint Seminar; GEWEX Conference on Global Water and Energy Cycle; SUNY-Albany

2013 AGU Annual Meeting; Rutgers; NOAA MAPP Webinar; UNC-Chapel Hill; NOAA Library Webinar; Columbia University Lamont-Doherty Earth Observatory; Yale University

2012 AGU Annual Meeting; DISCCRS; NCCR Climate Summer School; Princeton University

2011 NOAA GFDL; UCLA; AMS Annual Meeting

2010 Stevens Institute of Technology; NASA GISS

2009 DOE PNNL

2008 Climate, Ecosystems, and Resources in Eastern California Conference; California Climate Change Research Conference

PROFESSIONAL SERVICES

- Proposal Reviewer for: NOAA Climate Observations and Monitoring Program, Swiss National Science Foundation
- Panelist for: National Science Foundation
- Reviewer for: Bulletin of the American Meteorological Society, Climatic Change, Climatic Change Letters, Climate Dynamics, Environmental Health Perspectives, Environmental Research Letters, Geophysical Research Letters, Journal of Climate, Journal of Geophysical Research, Journal of Hydrometeorology, Nature, Nature Climate Change, Proceedings of the National Academy of Sciences, Science, The Cryosphere, Water Resources Research
- Co-convener of session: "Cold season precipitation: projected changes in snow from observations, models and reanalyses", GEWEX Conference on Global Water and Energy Cycle, 2014
- Member of: American Geophysics Union, American Meteorological Society, and American Association for the Advancement of Science

MENTORING AND OUTREACH

Princeton University, Princeton, NJ

Co-founder of Princeton Women in Geoscience

2012-2015

Acted with other co-founders in the Geosciences Department and Atmospheric and Oceanic Sciences Program to create and implement a mentoring and career development program for early career scientists with an emphasis on retaining and altering perceptions of women in geoscience. Successfully funded by a proposal written for the Princeton University Dean of Graduate Studies and both departments. <http://scholar.princeton.edu/pwigs>

US Fish and Wildlife Service

Expert Panelist

2014

Invited expert panelist for reviewing the science associated with a proposal to list wolverine as Threatened under the Endangered Species Act. Served as an expert on snow, climate change, and climate modeling.

Isaac Newton Middle School for Math and Science, New York, NY

Career Day Speaker

Since 2010

Speaker for middle school students in Spanish Harlem about working as a scientist, researching climate, and attending college and graduate school in general.

**SELECTED
OUTREACH TALKS**

2015 Ice, Glaciers, and Snow: How a Scientist Views Glacier Photographs, Princeton Day School, Princeton, NJ.

2014 Superstorm Sandy and NYC, Science on a Sphere, World Science Festival, New York, NY.

2014 Energy Round Table Dinner, Princeton Environmental Institute, Princeton University, Princeton, NJ.

**SELECTED MEDIA
COVERAGE**

Many Flavors of El Nio Make Prediction Difficult, *Scientific American*, March, 9, 2016.

El Nino so far has drenched parts of California, but not the south, *U.S. News & World Report*, March, 9, 2016.

New calculations of rising temperatures paint a dismal picture for economies of poorer nations, *ClimateWire*, August, 18, 2015.

Why Are Asia's Glaciers Mysteriously Expanding? *Discovery.com*, October 13, 2014.

Climate Change: Here's What It Really Means For Your Life, *Refinery29*, July 9, 2013.

Major snow disappoints with minor moisture, *CNN*, March 6, 2013.

Warming climate could mean bigger blizzards, less snow, *CNN*, February 26, 2013.

Climate contradiction: Less snow, more blizzards, *Associated Press (e.g. Washington Post, USA Today)*, February 19, 2013.

Out of Equilibrium? The World's Changing Ice Cover, *Environmental Health Perspectives*, January 1, 2011.

**TEACHING
EXPERIENCE**

New York University, New York, NY

Guest Lecture, GLOB1-GC1030, "International Political Economy"

Fall 2015

Guest Lecture, GLOB1-CE9905, "Carbon-Constrained Economies"

Summer 2014

Princeton University, Princeton, NJ

Guest Lecturer, GEO 202, "Ocean, Atmosphere, and Climate"

Spring 2012

University of California, Los Angeles, Los Angeles, California

Guest Lecturer, AOS 201B, "Geophysical Fluid Dynamics II"

Spring 2009 and 2008

Guest Lecturer, AOS 201A, "Geophysical Fluid Dynamics I"

Winter 2009

Teaching Assistant, AOS 1, "Climate Change: Puzzles and Policies"

Spring 2008

**PREVIOUS
EMPLOYMENT**

Goldman Sachs & Co., New York, NY

Investment Banking Analyst

2004 - 2006, Summer 2003

Financial Institutions Group analyst covering insurance, reinsurance, and exchanges.